DOCUMENT RESUME

ED 250 460 CE 039 884

AUTHOR Hull, William L.
TITLE R&D Outcomes: An Examination of Product Distribution, Use and Impact in Vocational Education.
INSTITUTION Ohio State Univ., Columbus. National Center for Research in Vocational Education.
SPONS AGENCY Office of Vocational and Adult Education (ED), Washington, DC.
PUB DATE 83
CONTRACT 300-83-0016
NOTE 76p.
PUB TYPE Reports - Research/Technical (143)

EDRS PRICE MF01/PC04 Plus Postage.
DESCRIPTORS Cost Effectiveness; Evaluation Criteria; Federal Aid; Guidelines; *Information Dissemination; Program Costs; *Research and Development; Research Design; Research Problems; Research Projects; *Research Utilization; *User Satisfaction (Information); Use Studies; *Vocational Education
IDENTIFIERS Impact Studies

ABSTRACT

A study examined the distribution, use, and impact of vocational education research and development (R&D) products developed with Federal monies during fiscal years 1981 and 1982. Distribution data for the study were obtained from responses to questionnaires from 22 of the 32 states with products accepted by the Educational Resources Information Center (ERIC) during calendar year 1982. Next, telephone interviews were administered to 55 recipients of the Dissemination and Utilization (D&U) Program of the National Center for Research in Vocational Education (NCRVE). Finally, impact data were obtained from six sites in West Virginia where two NCRVE-developed entrepreneurship training products were being used. These three data collection efforts, which resulted in a rather positive picture of R&D product impact, confirmed that R&D effectiveness can indeed be documented; however, such documentation turned out to be expensive. To keep documentation costs to a minimum, researchers were urged to plan utilization and impact studies carefully, to ensure that questions in such surveys be relevant to the purposes at hand, and to make certain that study respondents are key audiences who are in a position to resolve the problems under investigation. (Appended to this report is a conceptual framework for assessing impact.) (MN)

****
* Reproductions supplied by EDRS are the best that can be made *
* from the original document. *
****

ED250460

R&D OUTCOMES: AN EXAMINATION OF PRODUCT DISTRIBUTION, USE AND IMPACT IN VOCATIONAL EDUCATION

William L. Hull

U.S. DEPARTMENT OF EDUCATION
NATIONAL INSTITUTE OF EDUCATION
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

√ This document has been reproduced as received from the person or organization originating it.
Minor changes have been made to improve reproduction quality.

• Points of view or opinions stated in this document do not necessarily represent official NIE position or policy.

The National Center for Research in Vocational Education
The Ohio State University
1960 Kenny Road 43210
Columbus, Ohio

1983

CE039884

THE NATIONAL CENTER MISSION STATEMENT

The National Center for Research in Vocational Education's mission is to increase the ability of diverse agencies, institutions, and organizations to solve educational problems relating to individual career planning, preparation, and progression. The National Center fulfills its mission by:

- Generating knowledge through research
- Developing educational programs and products
- Evaluating individual program needs and outcomes
- Providing information for national planning and policy
- Installing educational programs and products
- Operating information systems and services
- Conducting leadership development and training programs

FUNDING INFORMATION

Project Title:	National Center for Research in Vocational Education, Applied Research and Development Function
Contract Number:	300830016
Project Number:	051MH30001
Act under Which Funds Administered:	Education Amendments of 1976, P.L. 94-482
Source of Contract:	U.S. Department of Education Office of Vocational and Adult Education Washington, D.C. 20202
Contractor:	The National Center for Research in Vocational Education The Ohio State University Columbus, Ohio 43210
Executive Director:	Robert E. Taylor
Disclaimer:	This publication was prepared pursuant to a contract with the Office of Vocational and Adult Education, U.S. Department of Education. Contractors undertaking such projects under government sponsorship are encouraged to express freely their judgment in professional and technical matters. Points of view or options do not, therefore, necessarily represent official U.S. Department of Education position or policy.
Discrimination Prohibited:	Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color, or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Title IX of the Education Amnendments of 1972 states: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education Project, like every program or activity receiving financial assistance from the U.S. Department of Education, must be operated in compliance with these laws.

TABLE OF CONTENTS

	Page
LIST OF TABLES AND FIGURES	v
FOREWORD	vii
EXECUTIVE SUMMARY	ix
CHAPTER I. INTRODUCTION	1
CHAPTER II. DISSEMINATION OF R&D PRODUCTS	5
Selection of Products	5
Copies Distributed	7
CHAPTER III. D&U SELECTED PRODUCT USE	15
Selection of Respondents	18
Analysis of Results	19
CHAPTER IV. ASSESSMENT OF PRODUCT IMPACT	27
Selection of the Product	27
Implementation and Use	29
R&D Product Impact	33
SUMMARY	45
APPENDIX A: CONCEPTUAL FRAMEWORK FOR ASSESSING IMPACT	49
APPENDIX B: COMMUNICATION	59
REFERENCES	64

LIST OF TABLES AND FIGURES

		Page
TABLE 1.	R&D PRODUCTS DISTRIBUTED BY PROGRAM SOURCE	8
TABLE 2.	TOTAL NUMBER OF STATE-ADMINISTERED PRODUCT COPIES DISTRIBUTED BY ROLE AND ORGANIZATION OF USERS	10
TABLE 3.	NUMBER OF FEDERALLY ADMINISTERED PRODUCT COPIES DISTRIBUTED TO ORGANIZATIONS BY TYPE OF PRODUCT	11
TABLE 4.	NUMBER OF STATE-ADMINISTERED PRODUCTS DISTRIBUTED BY TYPE OF PRODUCT	13
FIGURE 1.	DESCRIPTION OF D&U PRODUCTS	16
TABLE 5.	NUMBER OF PRODUCT USE RESPONDENTS BY PRODUCT TITLE	20
TABLE 6.	PRODUCT USE SUMMARY	23
TABLE 7.	AVERAGE NUMBER OF HOURS SPENT BY INSTRUCTORS PREPARING AND TEACHING ENTREPRENEURSHIP, BY YEAR	39
TABLE 8.	AVERAGE NUMBER OF STUDENTS SERVED BY ENTREPRENEURSHIP PROGRAMS	39

FOREWORD

The effective dissemination of high-quality, research-based products is a fundamental first step in the process of improving vocational education programs. Such dissemination not only eliminates the need to "rediscover the wheel," but also saves in terms of product development costs.

This report assumes a systematically developed, high-quality product based on research and development (R&D) efforts. Its focus is on activities of R&D product recipients. This report asks who they are, what they have done with the product, and what difference the product has made in their programs.

Of necessity, the scope of the inquiry behind this report became increasingly restricted and narrower as the investigation moved from distribution to use and impact assessment. However, the report should help document the state of product dissemination in vocational education. In addition, it should help provide a database for designing an evaluation system for the outcomes of vocational education R&D. This design is discussed in a companion document titled System Design for Evaluating Vocational Education Research and Development.

We acknowledge the assistance of David P. Crandall, Executive Secretary of The Network, Inc., and Doren Madey Pinnell, Director of Corporate Relations, The Fuga School of Business, Duke University, who reviewed draft manuscripts of this report. Comments from M. Catherine Ashmore, Program Director of Product Management for the National Center and Wesley E. Budke, Program Director for the National Center Clearinghouse, on the draft manuscript also were appreciated.

This study of R&D product distribution, use, and impact could not have been completed without the cooperation and help of state and local vocational educators. Persons completing the distribution records and responding to the telephone interviews were too numerous to list individually, but the West Virginia educators deserve special mention for assisting with the impact study. In particular, I wish to express appreciation to Ed Suddath, State Department of Education, and Bill Jacobson, Marshall University. They assisted in arranging for the site visits. Local teachers participating in the study were: Mark Caldwell, Fayette Plateau Vo-Tech School; George Darling, Monongalia County Vo-Tech School; Chris Dunkle, Barboursville High School; Homer Hall, Wheeling Park High School; Beth Monk, Huntington East High School; Marianne Rastle, Charleston High School; Donna Snyder, Huntington East High School; and Barbara Spencer, Milton High School.

In addition to the project director, William Hull, other National Center staff assisting this project were Kay Adams, Jeani Gray, Michael Littman, and Judy Sechler. Editorial assistance was provided by Sharon L. Fain.

Robert E. Taylor
Executive Director
The National Center for
Research in Vocational Education

EXECUTIVE SUMMARY

This study was undertaken to document the distribution, use, and impact of vocational education research and development (R&D) products developed with federal monies during fiscal years 1981 and 1982. R&D products developed under Programs of National Significance and state-administered projects were reviewed.

Three different types of data were collected to examine three different groups of products.

1. Distribution data came from products accepted into the Educational Resources Information Center (ERIC) during calendar year 1982. These products were matched with entries in the Resources in Vocational Education (RIVE) database at the National Center for fiscal years 1981 and 1982 to verify the project source.

2. Use data came from recipients of R&D products selected for promotion by the National Center's Dissemination and Utilization (D&U) Program. As these products were considered to be some of the very best available, these use data represent a "high water mark" for the utilization of vocational education R&D products.

3. Impact data came from two products developed to increase users' competence in entrepreneurship. These products were a program planning guide and a set of eighteen instructional modules developed by the National Center for Research in Vocational Education.

The methodology for collecting this information included several activities. First, requests for product distribution records were sent by mail to contact persons in each state. Twenty-two of the thirty-two states with products accepted by ERIC responded with useable information on the role and organization of recipients. Next, usage information was obtained by telephone from fifty-five recipients of the D&U Program's selected products. Finally, impact data were obtained from six site locations in West Virginia where the two entrepreneurship products were being used.

The findings from this study, summarized in the following, are discussed in greater detail in the report.

Distribution Data

- Of the sixty products produced under Programs of National Significance, a total of 19,396 copies were distributed during the calendar year in which the products were produced.

- Of the 248 products produced under state-administered vocational education program improvement projects, a total of 56,231 copies were distributed during the calendar year in which the products were produced.

- Over half (52 percent) of the product copies from Programs of National Significance were sent to state education agencies.

- Secondary schools represented the second largest audience for products produced under Programs of National Significance (18 percent).

- Nearly half (48 percent) of the state-administered product copies were distrtibuted to secondary schools.

- Two-year institutions represented a much larger audience for products produced under state program improvement projects (20 percent) than they did for products produced under Programs of National Significance (3.6 percent).

- Very few copies (usually less than 10 percent of total copies) were received by nonprofit public and private organizations, or by public agencies not connected with education.

- Teachers received more R&D products than did other roles in secondary schools -- capturing 54 percent of the copies distributed to schools by state agencies.

- Products from Programs of National Significance with the most widespread dissemination were information papers and resource guides, products with the most widespread dissemination from state-administered projects were student guides and research/evaluation reports.

Use Data

The D and U selected product use study revealed the following:

- Seventy-five percent of the D&U selected product recipients remembered the product. Over half of this number, 63.6 percent, had used the product within the last year.

- On the average, persons using the selected products with specific groups each used the products with seventy-three teachers, 208 students, twenty-eight administrators, forty-five counselors, and seventeen advisory council members.

The following use data were collected on the entrepreneurship materials during the process of selecting them for the impact study. Participants in three nationwide workshops were asked by telephone what they did with the products.

- Ninety percent of the participants in workshops promoting the entrepreneurship materials had used them for instructional purposes.
- State education departments, in cooperation with universities, had used the entrepreneurship materials in workshops with 1,125 teachers, thirty-nine advisory council members, twenty-five directors of adult education, and twenty-four community college deans.
- Vocational-technical schools had used the entrepreneurship modules with 325 adults, 1,184 students, and sixteen instructors.

Impact Data

The impact study of the entrepreneurship resource guides and eighteen curriculum modules yielded the following information:

- Four of the five school districts that had tried the entrepreneurship modules were continuing to use them in place of materials they used previously with their senior classes. One comprehensive high school had initiated a new elective course on entrepreneurship based on the modules.
- The sixth school was continuing to use the materials in informal adult education courses.
- Teachers had invested over 1,300 hours of non-reimbursed time preparing to use the modules.
- Over 6,200 copies of pages within the modules have been duplicated at local expense.
- Approximately $200 in start-up costs per site were saved by using the entrepreneurship modules instead of purchasing new textbooks.
- Entrepreneurship instruction accounted for 20,160 student contact hours annually in the six sites visited.

While gathering such impact data, project staff also identified a number of factors that influence the ability of R&D materials to effect changes on a systematic basis. Some of these factors were as follows.

- o A school-state infrastructure. A good working relationship had to exist among local schools, the county office, and the state education agency.

- o Interest in starting a business. Students and teachers who were most successful with the instruction came from families experienced in operating a business.

- o Linkages with the community. Speakers from the community were helpful in promoting entrepreneurship and providing an opportunity for students to see the management side of business.

- o Teacher competence. In addition to experience, teachers needed training in how to teach entrepreneurship. Apparently, the two-day workshop was adequate to start them learning on their own.

Factors inhibiting changes also were identified -- the most important of these being the inability of students to obtain loans and take responsibility for starting and operating a business.

CHAPTER 1

INTRODUCTION

Since 1970, over $350 million has been invested in vocational education program improvement projects (National Center for Research in Vocational Education 1980). In addition, data show that nearly $25 million was spent on state program improvement projects (research, exemplary, and curriculum development) in fiscal year 1981 alone (Budke 1983). Clearly, these rates of expenditure require accountability; yet to date, evidence of impact has been scant.

Research evaluating the effectiveness of vocational education research and development is scarce for several reasons. First, evaluation of research and development product and information utilization and impact is expensive. Records and surveys may be used to measure relatively superficial impressions of impact, but measuring actual program changes usually is a complex process that often requires on-site interviews and observation. Second, appropriate evaluation takes time. Longitudinal studies are needed, but most funding strategies are based upon yearly cycles. This makes long-term data collection designs nearly impossible to implement. Third, coordination of over fifty different state funding points is difficult. Conditions within each state dictate priorities for research and development, and the amount of money spent on R&D varies widely.

These preconditions for measuring research and development impact add to the already heavy federal program improvement

burden. However, attention to program improvement is being urged by a number of national-level agencies including the National Advisory Council on Vocational Education (1981). This council recommends that. . . "the federal role be refocused on clearly defined priorities to achieve access and equity and program improvement" (p.3). But given recent reductions in federal spending, it is difficult to justify an expensive evaluation system to assess educational research and development effectiveness. Clearly a simplified and relatively low-cost system is needed for collecting data on the distribution, utilization, and impact of R&D information and products.

This study examined outcomes achieved from the distribution, use, and impact of R&D information and products. Such a conceptual framework of investigation has proven beneficial to the development of impact assessment criteria (Hull, Adams, and Bragg 1983). Specifically, the objectives of this study embraced these three conceptual levels:

- To determine the distribution of significant vocational education research and development products and information
- To determine the use of significant vocational education research and development products and information
- To determine the impact of significant vocational education research and development products and information

The data summaries obtained from this project will be used to develop and refine a system for evaluating vocational education R&D.

Procedures for collecting data at each of the three conceptual levels are described within each chapter. Thus it is sufficient at this point to mention only the general decision rules used to select "significant"[1] vocational education R&D products. First, these products were developed from Programs of National Significance and state program improvement projects (funded under subpart B, sections 131 research, 132 exemplary and innovative, and 133 curriculum development of P.L. 94-482, the Education Amendments of 1976.) Second, a particular year or years of products was selected from products accepted by the Educational Resource Information Center (ERIC). Distribution data were collected on all of these products. Use data came from products promoted by the National Center's Dissemination and Utilization Program. Impact data, because of the expense, were collected on only two products that have been disseminated and used nationwide.

This report is organized into three remaining chapters and a summary. Each of the chapters contain a description of data collection activities at each of the three conceptual levels: distribution, use, and impact. The three conceptual levels of distribution, use, and impact were taken from figure A-1 in appendix A. These levels lend themselves more readily to data collection following the distribution of products than do the other levels (e.g., product development and implementation)

---

[1]"Significant" is used to describe a group of products selected for study. Lower value or worth should not be ascribed to products excluded from this study.

in the conceptual framework. The "impact" level is described in the conceptual framework as the "effects" of product use.

Different populations of products were selected for this study as a matter of convenience. For example, products accepted into the ERIC database were used because they were worthy of widespread dissemination (a criterion in the model) and the names and addresses of product distributors were readily available. Likewise, the twelve products promoted by the National Center's D&U Program were exemplary. In addition, records of users were available both from product developers and from the D&U Program staff. Finally, the two products on entrepreneurship were being used in locations convenient to the National Center; thus impact data were readily available.

In summary, while the products selected for this study were not from the same population of products, they were all developed with federal vocational education funds. In addition, they were being used by practicing vocational educators. The samples appeared to be similar to products from prior studies and to each other. They represented the conceptual levels of impact very well. These levels are further explained and defined in appendix A. The conceptual framework in this appendix was used to guide the direction and conduct of this study, including the selection of the samples.

CHAPTER II

DISTRIBUTION OF R&D PRODUCTS

The measurement of product distribution (i.e., numbers of copies distributed) in this study was limited to the copies distributed during the year in which each product was released. Such a time limitation was necessary for comparison purposes because all of these products were entered in the ERIC system; thus there was no feasible way to measure the distribution of duplicated microfiche or print copies.

Research coordinating unit (RCU) directors in states with products in the Research in Vocational Education (RIVE) database were the primary source of product distribution records for state-administered products. In some cases, it was necessary for RCU directors to obtain records from other persons in order to provide the requested information. The National Center provided the distribution information for all but three of the products generated under Programs of National Significance.

Selection of Products

As mentioned previously, the information on product distribution came from research and development (R&D) products sponsored in whole or in part by the federal government. Products from state-administered program improvement projects (as funded by Sections 131, 132, and 133 of Public Law 94-482) and the corresponding Programs of National Significance, comprised the population of products for this particular study. This is the third study (NCRVE 1980) and (Hull 1982), in nearly as many years to use this general population of products.

The products in the distribution were similar to those used in the studies of use and impact. The products in the use study are described in detail in appendix C while descriptions of the products used in the impact study may be found in Chapter IV. A full range of product types (e.g., research reports through learning materials) were included in the distribution.

The sample was limited to those products entered into the RIVE database between the dates of January 1, 1982 and December 31, 1982. In addition, only products accepted by the Educational Resources Information Center (ERIC) or the Vocational Education Curriculum Materials (VECM) databases were used.[2]

To obtain product distribution data, a letter was addressed to the research coordinating unit director or a person on his or her staff. An attached sheet asked for information on the number of product recipients (see appendix B). The information was to come from available records, requiring no data collection by the recipient of the letter. A prior letter had been sent to the state director of vocational education in each state naming the person who would be asked for product distribution records. Two state directors provided substitute names for the state contact person. Telephone calls were made to contact persons who did not respond to the request. In some cases, it was possible to obtain the information over the telephone.

---

[2]The sample included a total of 360 state-administered products. Some of these products entered in 1982 actually came from 1981 and 1982 projects. There were 105 products in the sample from 1982 projects, 242 products from 1983 projects, and 13 products from the VECM database. All of the products from Programs of National Significance came from 1981 projects.

Telephone calls were made to most of the thirty-two states involved in this phase of the study. In fact, calls were made in advance of the letter requesting information if a state had seven or more products to report on. In addition, calls were made to persons in states who had not sent the information one week after it was due. In all, twenty-two states in the thirty-two state sample responded to the information request.

Copies Distributed

The primary statistic obtained from this particular data analysis was the number of R&D product copies distributed to users. Primary users were categorized by role and organization for the state-administered products and by organization for the products produced under Programs of National Significance. Table 1 shows the number of products captured by this sample.

The telephone calls to the states probably accounted for the relatively high response rate (68.9 percent) for state-administered products. This return rate compares favorably with the 70 percent useable return rate in the Hull (1982) study and the 68 percent rate from the NCRVE (1980) study. The Programs of National Significance product response rate was high because most of the records were available from the National Center. The average annual number of state-administered product copies distributed per product is 227. This is slightly lower than 1982 study results of 280 average annual number of copies distributed per product. In the 1983 study, an average annual of 323 copies per product were distributed from federally administered Programs of National Significance.

TABLE 1

R&D PRODUCTS DISTRIBUTED BY PROGRAM SOURCE

Source of Products	Population of Products	Number of Products with Useable Distribution Data	Number of Copies Distributed	Average Number of Copies Per Product
Programs of National Significance	60	60	19,396[a]	323
State-Administered Projects	360	248	56,231[b]	227

[a]This figure includes 1,006 copies distributed to national and international users.

[b]This figure includes 5,025 copies distributed to national and international users, not contained in any other tables.

It should be noted that nearly half of the copies from state-administered products went to secondary schools (table 2). Most of these copies were disseminated to teachers. The next highest number of copies went to secondary school administrators. This clearly indicates the most common way for R&D products to reach the classroom is through principals and/or teachers. Most of the other product recipient audiences look small by comparison. Administrators in all settings were key to reaching other staff, accounting for nearly half (47.3 percent) of the copies distributed.

Table 3 portrays the distribution of federally administered products. The vast majority of copies went to state education agencies. This is consistent with the National Center's role in supporting state and national government agencies. The majority of products produced from Programs of National Significance are research and/or evaluation reports -- materials that are most appropriate for policymakers. This product type category also was high among state-administered products.

Table 3 contains information on the number of copies distributed from Programs of National Significance. These figures, categorized by type of product and organization of recipient, indicate that most of the products were either information papers or R&D reports. All of the products in the information papers category were produced by the National Center. The resource guide series contained three Resources in Vocational Education (RIVE) volumes. Their distribution of 1,500 copies each inflated the copy numbers for this category from 748 to

TABLE 2

TOTAL NUMBER OF STATE-ADMINISTERED PRODUCT COPIES DISTRIBUTED BY ROLE AND ORGANIZATION OF USERS

Organization	Role						
	Total	Administrative		Teachers		Students	
		N	Percent	N	Percent	N	Percent
State Education	7,176	5,051	20.9	1,691	07.9	434	07.7
Secondary School	24,728	8,362	34.5	13,396	62.8	2,970	52.4
Two-Year Institution	10,316	3,659	15.1	4,570	21.4	2,087	36.8
University	3,789	2,584	10.7	1,047	04.9	158	02.8
Other Public Organizations	3,383	2,967	12.3	398	01.9	18	00.3
Other Private Organizations	1,814	1,589	06.6	225	01.1	0	00.0
TOTAL	51,206	24,212	100.1[a]	21,327	100.0	5,667	100.0

[a]Percents do not add to 100.0 due to rounding

TABLE 3

NUMBER OF FEDERALLY ADMINISTERED PRODUCT COPIES DISTRIBUTED TO ORGANIZATIONS BY TYPE OF PRODUCT

Type of Organizations	Total Number of Copies N = 60 Products	Percent	Type of Product			
			R&D Reports N = 23 Products	Information Papers N = 25 Products	Resource Guides and Proceedings N = 7 Products	Handouts and Training Packages N = 5 Products
State Education Agencies	10,106	51.9	649	5,580	3,110	767
Secondary Schools	3,438	17.6	60	2,191	1,113	73
Two-Year Institutions	708	3.6	39	62	397	210
Universities	723	3.6	40	195	405	83
Other Public Organizations	430	2.1	100	123	25	182
Other Private Organizations	96	0.4	16	50	16	14
Internal Distributions	2,889	14.8	720	1,777	113	279
National Regional Distributions	663	4.3	90	467	-	106
International Distributions	343	1.7	26	201	68	48
Total	19,396	-	1,740	10,646	5,248	1,762
Percent	-	100.0	9.0	54.8	27.1	9.1

5,248. The average distribution for the remaining four documents would have been 167 copies each without the RIVE volumes. The R&D products, except for three products distributed through the National Center's "cost recovery system", had relatively low distribution rates typically ranging from twenty-two to fifty-two copies each. (Most of these copies were sent only to the sponsor.)

Most of the copies (51.9 percent) from Programs of National Significance were distributed to state agencies such as research coordinating units. National and regional distributions were limited (4.3 percent of total copies) with the bulk of copies going to regional curriculum coordinating centers and national agencies such as professional associations. Most of the secondary school distributions went to large urban school districts or to other organizations through the National Center's cost-recovery sales. Distributions to all other categories ranged from 0.4 percent to 4.3 percent. Table 4 shows the breakdown for the distribution of state-administered products.

The most frequent topic area of the state-administered products was vocational education. New technology was the second most frequent subject in the reports. In descending order of frequency, the other areas were improvement of program management, special populations, and economics.

Most of the state-administered products were developed from either curriculum development funds (section 133 of P.L. 94-482), 51.6 percent or research funds (section 131), 35.5 percent. Only

TABLE 4

NUMBER OF STATE-ADMINISTERED PRODUCTS
DISTRIBUTED BY TYPE OF PRODUCT

Type of Product	Number of Products		Number of Copies	
	N	Percent	N	Percent
Research or evaluation report	102	41.1	16,690	32.6
Information papers and resource guides	9	03.6	1,633	03.2
Handbooks	26	09.3	8,372	16.3
Teacher guides	13	05.2	1,354	02.6
Student guides	98	39.5	28,182	55.0
TOTAL	248		51,206	

12.9 percent of the products were funded from exemplary monies (section 132). Forty-seven percent of the products were released in July or August following the close of the June 30 fiscal year; so for nearly half of the products, dissemination records are for six months or less.

CHAPTER III

D & U SELECTED PRODUCT USE

The Dissemination and Utilization Program's (D&U) selected products represent some of the best available outputs from R&D projects nationwide. Most of these products have been developed with federal funds, and all have met the D&U Program's product selection criteria.

The D&U Program is located in the Information Systems Division of the National Center for Research in Vocational Education. It promotes exemplary products by publicizing information about them and by recommending their use to resolve critical problems. It should be noted that the National Center does not distribute the actual products; it distributes only information about them. However, many of the D&U selected products have achieved nationwde distribution partly as a result of the information provided by the D&U Program. Detailed records of D&U selected product requesters are kept, but to date there had been little opportunity to conduct follow-up studies to determine if requesters actually have used the products. Thus twelve D&U selected products for calendar years 1981 and 1982 were selected for this study. These particular years were selected because they provided a sufficient "publication" time to ensure that the products were in use. The D&U selected products are described in figure 1. No research or evaluation reports were selected because these products are intended to initiate new programs in the field. In addition, most evaluation reports are site specific. Research reports often contain fragmented

The High School Student In The WORKING WORLD:

A Handbook for Counselors

Meets the need for a self-contained sourcebook for use with students entering "the world of work" during or immediately after high school. **Working World** gives indepth yet concise coverage of the topics most crucial to secondary vocational counselors and placement officers:

- Helping students explore their interests and potential
- The career decision-making process
- Involving the student's family
- Getting hired and what to expect on the job
- Exploring self-employment
- Secondary and postsecondary vocational-technical training programs
- Counseling the handicapped
- Planning a career guidance program
- Sources of information on present and future opportunities
- Sources of free and inexpensive counseling materials

Includes worksheets and other aids to giving non-college-bound students the career planning help they need. Developed by the Texas Education Agency. [1981/112 pp.]

IDEA BOOK:

Meeting the Occupational Information Needs of Disadvantaged Youth

Suggests innovative ways to deliver job market information to out-of-school youth—at a time when sound education and training decisions are more complex and more crucial than ever before. Strategies, models, and examples useful in delivering and restructuring career guidance services are presented in three chapters:

- "Delivery of Occupational Information"—suggested program responses based on the experiences of selected projects and youth agencies
- "Outreach Strategies"—guidelines and approaches for telling out-of-school youth about available information and services
- "Recommendations for Planning"—issues and conclusions regarding the major needs of youth and major program needs

Developed by the Education and Work Program, Northwest Regional Educational Laboratory. [1981/56 pp.]

THE INTERDEPENDENT COMMUNITY:

Collaborative Planning for Handicapped Youth

Describes an interagency collaborative planning process for improving career education services for handicapped youth. The intended outcome is a detailed plan devised by members of various agencies and supported by the community, parents, and employers. The **Member's Guide** [32 pp.] contains basic information and planning exercises and is designed to assist team members in reducing barriers to interagency cooperation. The **Leader's Handbook** [112 pp.] contains the **Guide** plus detailed rationales and instructions for team leaders. The collaborative planning process can be readily adapted to any subject or program area. [1980]

LEADERSHIP PRACTICES:

For Directors of Vocational Education

Serves as a professional handbook for directors of vocational education, to assist them in creating conditions conducive to effective learning. Compiled from the contributions of vocational educators from the Division of Vocational Education, Ohio Department of Education. [1979/188 pp.]

A METHODOLOGY FOR READING SKILL IMPROVEMENT IN VOCATIONAL SECONDARY PROGRAMS

Assists vocational teachers in helping students read more effectively in vocational classes. Examples given of industrial arts activities can be readily adapted to other service areas. Developed by vocational education personnel in the Salem, Oregon, school district and the Oregon State University School of Education. [1981/60 pp.]

SOLAR CURRICULUM GUIDES

Provides information related to the preparation of solar energy technicians through five courses on—

- Applications of solar energy and future technology
- Introduction to solar energy
- Control theory and application
- Collectors and energy storage
- Solar heating and cooling systems

Prepared by vocational educators at Seward County Community College, Kansas. [1980/260 pp.]

STATEWIDE OCCUPATIONAL EVALUATION SYSTEM ASSESSMENT PACKET

Provides a unique mechanism for initiating evaluation efforts or for clarifying, refining, and following through on state plans currently in place. This model builds a realistic base for program assessment and improvement on local expectations, and meshes those expectations with broader objectives at the state level. The framework is organized around *key areas* derived from—

- The steps that characterize student progress through an occupational program (program awareness, program selection, development of basic and occupational skills, placement, etc.)
- The administrative functions that support student progress (program and staff development, resources, and safety)

Extensive outlines, sample forms, and worksheets in the assessment packet detail the process. [1981/200 pp.] A companion videotape, **From Assessment to Improvement**, introduces the method. [31 minutes, color] Developed by the University of the State of New York and the New York State Education Department, the set is equally applicable to program improvement efforts in other states.

Figure 1. Description of D&U Products

SURVIVAL SKILLS FOR THE REAL WORLD

Helps teachers equip students at the junior and senior high levels with the practical skills needed to face the challenge of daily life and to achieve their personal goals. This curriculum guide focuses on two major areas:

- Employment—locating, applying for, interviewing for, and choosing a job; skills employers look for; and investigating job requirements
- Personal and family management—managing your money, responsibilities of car ownership, starting on your own, and responsibilities as a taxpayer

Survival Skills includes numerous activity sheets and handouts ready for duplication; a checklist to map student progress; a student list of service organizations; and a teacher's section of additional print and audiovisual resources. Developed by the Oklahoma State Department of Education. [1981/192 pp.]

VOCATIONAL EDUCATION DEMONSTRATIONS:

Measuring Impact and Improving Effectiveness

Aids vocational educators in assessing and improving procedures used to plan, implement, evaluate, and monitor programs. This publication surveys, with examples and illustrations, procedures used to encourage adoption of successful practices and to select and fund demonstration projects. A glossary, a discussion of recommended criteria for reviewing proposals, and a bibliography are included. [1980/136 pp.]

VOCATIONAL EDUCATORS' HANDBOOK FOR ECONOMIC DEVELOPMENT

Familiarizes the novice business and industry liaison or coordinator with the basics of economic development and the role vocational education can logically and effectively assume. This "how-to" manual will provide a springboard for customized, creative ideas as it focuses on two major themes:

- Service to clients—the individual who wants to be trained for a productive and satisfying work life, as well as the business or industry needing labor trained to specific requirements
- Teamwork—the public-private sector and agency/individual collaboration so crucial to assessing and meeting the needs of both client groups simultaneously

The extent to which vocational education participates in local and state economic development remains largely up to the educators themselves. The individual situation of the coordinator or linking agent taking this initiative will dictate whether to utilize the **Handbook** in its entirety, or select among its five sections:

- "The Role of Vocational Education in Job Creation"
- "Preparing for Involvement in Economic Development"
- "Planning Industry Training Programs"
- "Sources of Funding and Technical Assistance"
- "Selected Readings and Bibliography"

Seventeen case studies are summarized in an appendix as pertinent examples. Developed by the American Vocational Association. [1981/141 pp.]

VOCATIONAL PLANNING GUIDE

Provides a practical approach for local vocational administrators striving to plan effective and efficient programs. Self-contained chapters permit planners to turn directly to the information that addresses their immediate needs for—

- Establishing vocational education's role within the overall LEA mission
- Securing planning information by accessing available occupational data and collecting supplementary data
- Accessing resources from both the public and private sectors
- Acting on information by synthesizing it in a systematic manner
- Planning for legislative compliance in regard to representative planning input and other mandates
- Establishing working relationships with business, industry, labor, and other groups in the community
- Finding additional information and help through agencies, documents, associations, and resource persons

While geared primarily to Missouri personnel, the planning practices in this guide will prove valuable to school, district, and community college planners in other states as well. Developed by the Missouri Department of Elementary and Secondary Education. [1982/76 pp.]

VOCATIONAL GUIDANCE:

Planning Handbook

Helps in planning services for vocational education students. The **Handbook** presents a model to help clarify the meaning of vocational guidance and offers suggestions on basic services planners should consider for their programs. Prepared by New Educational Directions, Inc., Crawfordsville, Indiana. [1979/98 pp.]

Figure 1 Continued.

findings in need of further development before they can be used by others.

The data collection had three purposes. First, it was intended to determine the extent of product use. Second, it was intended to refine units of measure for product utilization assessment procedures. And finally, it was intended to develop techniques for auditing records for product recipients. This report, however, contains information relevant to the first purpose, product use, only. Findings related to the other two purposes will be incorporated into A System Design for Evaluating Vocational Research and Development -- the companion document to be developed from this study.

As mentioned previously, the highly selective manner in which the D&U products were chosen, demands that results must be viewed as a "high water mark" in regard to expectations for vocational education R&D products.

Selection of Respondents

Lists of probable recipients of these D&U products were compiled from the National Center's "Field Activity Record" form and from files of product developers and distributors. Some selectivity occurred when the lists were compiled, but an attempt was made to select recipients randomly. There was a tendency to select distribution listings from purchase orders and letter requests that included identifiable names of users. The names came from 1981 and 1982 distribution lists for the products.

Zero to sixteen users names were available for the twelve products. The requester respondents were not limited to

the states where the product was developed. In fact, over 80 percent of the names came from lists of nationwide distributions of the product.

Table 5 shows the actual number of persons contacted about the D&U products. This does not include persons on the distribution list who were out-of-town at the time of contact, who had moved, or otherwise were not available. To comply with the minimum exclusion requirements for FEDAC clearance, not more than nine persons were contacted for each of the products.

A total of seventy-three persons were interviewed on eleven products. Individuals who did not remember the product, or who had passed the product along to others without looking at it, were counted as not having any information about the product. Those who had examined it but decided against using it were counted as a useable response. There were eight "no use" responses from the fifty-five persons who remembered the product. Their reasons for not using the product varied, ranging from "they had received it too recently" to "they were waiting for staff changes to introduce the product." The percentage column is the percent of useable responses from the persons contacted. It was not possible to determine exactly how many persons had received the product or the total number of products distributed.

Analysis of Results

Telephone calls were made by project staff to product recipients. The findings from the telephone calls were summarized as scenarios on a product-by-product basis. Some

TABLE 5

NUMBER OF PRODUCT USE RESPONDENTS
BY PRODUCT TITLE

Product Title	Persons Contacted from Distribution List	Persons with no Information on Product	Useable Responses	
			Number	Percentage
The High School Student in the Working World: A Handbook for Counselors	7	-	7	100%
Idea Book: Meeting the Occupational Information Needs of Disadvantaged Youth	9	3	6	33%
The Interdependent Community: Collaborative Planning for Handicapped Youth	8	5	3	38%
Leadership Practices: For Directors of Vocational Education	8	2	6	75%
A Methodology for Reading Skill Improvement in Vocational Secondary Programs	6	-	6	100%
Solar Curriculum Guides	4	1	3	75%
Statewide Occupational Evaluation System Assessment Packet	2	-	2	100%

TABLE 5 Continued.

Product Title	Persons Contacted from Distribution List	Persons with no Information on Product		
			Number	Percentage
Survival Skills for the Real World	5	1	4	80
Vocational Education Demonstrations: Measuring Impact and Improving Effectiveness	9	5	4	44
Vocational Educators' Handbook for Economic Development	None	-	-	-
Vocational Guidance: Planning Handbook	8	-	8	100
Vocational Planning Guide	7		6	86
TOTAL	73	18	55	75

structure for the interviews was provided through the use of "general comment" headings that were common to each product summary. However, the information in the scenarios varied widely due to the open-ended nature of the telephone interviews. Thus even though a composite picture of product use emerges within each scenario, most of this information cannot be aggregated across products because of the differences in the products and in the roles and organizations of the product users.

Some of the more quantifiable statements from the interviews are summarized in table 6. Obtaining these statements required classifying the D&U products into categories of product types and categorizing the respondent comments into three headings: personal use, use with others, or programmatic/organizational use. These classification judgments were made by the interviewers. None of the D&U selected products were classified as research reports, policy papers, position papers, or student materials. Therefore, these categories were omitted from table 6.

The information in table 6 shows "personal use" of the D&U selected products to be the most common, response. "Use with others" was the next most common response with a surprisingly strong showing in the programmatic/organizational use for handbooks and procedural guides. The reader should remember that these percentages reflect what the interviewee voluntarily mentioned as use of the product. Memory and the length of interview time tended to depress the frequency of uses reported.

BEST COPY

TABLE 6

PRODUCT USE SUMMARY

Type of Use	Types of Products					
	Guides, Directories, Bibliographies, Literature Reviews N = 16		Handbooks, Procedural Guides N = 32		Teacher Guides N = 7	
	Percentage[a]	Comment	Percentage[a]	Comment	Percentage[a]	Comment
Personal Use	43.8	Read or scanned	81.3	Read or scanned	85.7	Read or scanned
	50.0	Quoted it	12.5	Personal preference		
	12.5	Adapted product for own use				
	12.5	Conducted research				
Use with Others	25.0	Recommended as resource	31.3	Involved staff	14.3	Shared with university faculty
	6.3	Advisory Council	15.6	Advisory Committee	42.8	Teachers and students
	31.3	Administrators	3.1	Described in newsletter		
	12.5	Placed in a library	3.1	Distributed to administrator		
Programmatic/ Organizational Use	6.3	Developed into a curriculum plan	3.1	Developed set of standards		
	12.5	Policy decisions	40.6	Improved instruction		

[a]Percentages were computed as a proportion of the N in each column. The N is a composite of the useable responses from proudcts classified in this column.

BEST CO

TABLE 6 Continued.

PRODUCT USE SUMMARY

Type of Use	Types of Products					
	Guides, Directories, Bibliographies, Literature Reviews N = 16		Handbooks, Procedural Guides N = 32		Teacher Guides N = 7	
	Percentage	Comment	Percentage[a]	Comment	Percentage	Comment
Programmatic/ Organizational Use			6.2	Conduct statewide and nationworkshops		
			3.1	Developed handbook		
			6.2	Regional planning model		
			6.2	Conducted needs assessment		

[a]Percentages were computed as a proportion of the N in each column. The N is a composite of the useable responses from products classified in this column.

BEST COPY AVAILABLE

For example, as the interview lengthened, answers became shorter. Also, some respondents could not remember events that had occurred more than one or two years ago.

Chapter IV

ASSESSMENT OF PRODUCT IMPACT

An investigative study of product impact was conducted by project staff in October, 1983. One exemplary product entitled Entrepreneurship in Vocational Education was selected for study from the products promoted by the Dissemination and Utilization (D&U) Program. In addition, a product developed by the National Center entitled A Program for Acquiring Competence in Entrepreneurship (PACE), also was studied. Site visits were made to six communities in West Virginia where the products had been used. Observations from these communities were summarized and analyzed across sites as well as within sites. The results were reported along dimensions consistent with the impact framework developed in a companion document, Hull and Adams (forthcoming).

Selection of the Product

The products promoted by the D&U Program during 1981 and 1982 were reviewed by project staff. Selection was based on the following criteria:

- Widespread distribution of the product
- Similarity of the product to the population of products in that theme area
- Use of the product in several geographically adjacent areas

The substantive theme of "entrepreneurship" was selected because of widespread interest in the area and the potential for expansion in vocational education.

A program planning guide entitled Entrepreneurship in Vocational Education was not only available but also representative of products on entrepreneurship. This guide listed five steps for developing entrepreneurship training programs, and reviewed eight curriculum products. Selected details of each product were compared in two easy-to-read charts. The PACE modules, eighteen in all, were produced as one title per module. They were written at three different reading levels. Available with the modules was an Instructor's Guide with objectives for each unit, transparencies, and assessment questions answers.

The PACE modules and the program planning guide had been publicized and promoted through a series of workshops. The Entrepreneurship in Vocational Education document was distributed at four different National Academy workshops, noted below:

- o St. Louis, MO — December 1982
- o Raleigh, NC — October 1982
- o Marquette, MI — March 1983
- o Columbus, OH — October 1983

The planning guide and the modules were discussed at four regional meetings of distributive education teacher educators and state staffs at the following locations:

- o Springfield, MA — September 1981
- o Nashville, TN — September 1981
- o Milwaukee, WI — October 1981
- o Las Vegas, NV — November 1981

The modules were distributed to several West Virginia communities in preparation for prepublication revisions. Teachers present at a North Bend State Park meeting in November 1982 were asked to test the units and recommend revisions. The meeting followed an earlier meeting at Morgantown in August 1982.

Inservice workshops for representatives of school districts and state education agencies interested in entrepreneurship have been conducted in Nebraska and Wisconsin. "New Product" sessions at the American Vocational Association convention and promotional activities through the state liaison representatives (SLRs) have spurred product sales. From July 1980 through June 1983, the National Center sold 758 copies of the program planning guide in entrepreneurship and 9,846 PACE modules.

The persons participating in the National Academy workshops were interviewed to determine if the products were being used. This was completed prior to making a commitment for field site visits in West Virginia. The results of the interviews are summarized in the next section of this report.

Implementation and Use

Although the time frame for follow-up of products presented to 1982 and 1983 workshop participants was a little short, it was believed participants would have had time to use the products within this period. The participants at the North Bend State Park meeting had received a copy of the program planning guide during earlier pilot tests and a set of PACE modules at the meeting. Some persons at other locations had purchased PACE

modules on their own. The following statements summarize how some of the participants were using the program planning guide and PACE. Only 10 percent of the persons contacted had not used the materials.

- A professor in Virginia was using PACE with other resources to construct a teacher resource guide on entrepreneurship for statewide distribution.
- An inservice session was conducted with sixteen vocational instructors in an intermediate school district in Michigan using handouts from the program planning guide.
- A semester course in entrepreneurship is being developed in North Carolina for implementation by the state office; in addition, 310 distributive education teachers were informed about PACE via a newsletter.
- Multiple copies of the program planning guide on entrepreneurship were distributed to cooperative education teachers in the Houston Independent School District.
- A community college instructor in Michigan used handouts from the program planning guide in management classes of thirty-three and forty-four students.
- The research coordinating unit director in Wisconsin conducted an inservice (one day each) with sixteen intermediate districts and five postsecondary districts using these materials and others on entrepreneurship; average attendance was forty-five persons per session.
- An evening instructor at a community college in Michigan used PACE with an adult class on "Starting a Business." Thirty students were enrolled.
- A research and development project director in Oklahoma shared the information in the program planning guide with staff. It was then used as a resource to prepare for a national workshop and twenty regional workshops.
- A member of a state advisory council in Alabama shared the information with the thirty-nine-member council and the distributive education state supervisor.

- A university professor in Missouri used the program planning guide as a regular resource in his classes on retailing.

- A high school teacher in Ohio used the PACE modules with thirty senior students in distributive education.

- The revised PACE is being made available to high school teachers statewide through a "Center for Business Teachers" in California.

- A distributive education teacher in a county vocational-technical center in Ohio used PACE with two seniors last year.

- A university professor in Pennsylvania was using the planning guide with classes in farm management.

- The program planning guide was used in four workshops with high school students in Maryland. An average of forty-five students attended each workshop.

- PACE is being made available to local school districts through an inter-library loan system in Colorado.

- The program planning guide is being used by teacher educators in adult education classes at a state teachers' college in Kansas.

- A technical institute in Ohio used PACE in business education classes with an average attendance of twenty-six students per class.

- A high school teacher in Maryland used PACE with seventeen second-year distributive education students, and shared the materials with her advisory council.

- A "Center for Small Businesses" in Florida used PACE with 150 adult students.

- A joint vocational school in Ohio used PACE with 150 students in a summer workshop.

- A university professor in counselor education in North Carolina used the program planning guide with fifty students.

- A regional service agency in Maryland used the program planning guide as an inservice with five high school vocational teachers.

- A community college dean in Alaska used the program planning guide with his staff in business.
- A university professor in Missouri used the planning guide to inform faculty in her department of entrepreneurship as a priority in education.
- A restaurant association education director in New Mexico used the program planning guide in designing an "Introduction to Entrepreneurship" guide for statewide distribution to high school food service programs and Distributive Education Clubs of America Chapters.
- A small business training coordinator in Oklahoma used PACE with 1,000 students in a vocational technical school, with 175 adults in a seminar, and with three co-workers.
- A specialist at the Office of Advocacy in the U.S. Small Business Administration shared PACE with three supervisors and twenty-five people in a regional workshop.
- A postsecondary and adult education specialist in the Maryland Department of Education used the program planning guide in separate workshops with twenty-five directors of adult education, four statewide curriculum conferences, and twenty-four deans of community colleges.

The preceding examples of product use are isolated and disjointed, but they indicate what is reasonable to expect from the dissemination of R&D products. Nationwide implementation of R&D products depends heavily on a network of people, sometimes in specialized roles, linked together through communication and informal relationships. The preceding description came from people linked to one another only through workshops on entrepreneurship. They were self-selected for the workshops; no attempt was made to interrelate their activities.

R&D Product Impact

Education is a state responsibility in this country, so it is logical to assess impact on a state-by-state basis. In this case, West Virginia was selected for site visits because one of the products, Entrepreneurship in Vocational Education, had been developed by state staff members.[3] The other product, A Program for Acquiring Competence in Entrepreneurship (PACE), had been field tested in West Virginia. State leaders were receptive to assessing impact and willing to contribute some of their time. Travel costs were held down and disruption minimized by limiting the observations to half-day visits.

Interviews were conducted during the weeks of October 3 and October 10, 1983 in the following sites: Charleston, Huntington, Milton, Morgantown, Oak Hill, and Wheeling. Before discussing the findings of the impact study, however, a word needs to be said about the evaluation of substantive concept of "entrepreneurship."

"Entrepreneurship" as a concept to be taught has varied meanings in different contexts. For example, it is difficult to aggregate data or comments across the following notions:

- Instruction on starting a small business is equated, by some people, with instruction on entrepreneurship.
- Entrepreneurship is defined by some as a vertical dimension of the career development process, but is listed in the vocational education data system (VEDS) as a single, competency-based component at one level.

---

[3]Since development of the guide, both staff members have moved to other positions.

- Other persons insist on the taking of initiative, often associated with some risks, before a person can be considered an entrepreneur.

If entrepreneurship implies a commitment to establish a business enterprise, then achievement of success depends on many factors that are often not present when a person enrolls in a class. Among these factors are the following:

- Availability of risk capital
- Desire to be independent
- Knowledge of a product market
- Willingness to be opportunistic

Most high school students do not possess these qualifications. Criteria for judging the effectiveness of classes in entrepreneurship therefore, must take these special considerations into account. Time is required for individuals to decide to start a business. The opportunity to start one may come years after enrolling in a class on entrepreneurship. This makes the evaluation of entrepreneurship education effects on students within a defined time frame very difficult.

Impact assessment of recent entrepreneurship education activities is exacerbated by another factor. High quality distributive education materials are available for secondary education students. These distributive education materials are being used to prepare students for the world of work. However, the emphasis on working for oneself in these materials, rather than working for other people, needs to be reinforced. Many resources are available to vocational educators who want to place more emphasis on entrepreneurship.

Consistent with the impact assessment model (included in appendix A), the impact criteria used here focused on indicators of personal satisfaction (or dissatisfaction) with use of the materials, individual growth, organizational change, and societal contributions. Although entrepreneurship educational materials have the potential for influencing indicators of economic productivity such as the number of businesses started by users, insufficient time had elapsed for this to take place. Realistically, the research team did not expect to find much evidence of societal contributions.

The six sites visited had obtained the PACE units in November 1982, so this assessment followed receipt of the units by nearly a year. The program planning guide had also been shared with recipients some time earlier, but its use was reinforced at the November 1982 conference at North Bend State Park. The six sites visited included two county vocational schools and four comprehensive high schools. In almost every case the principal recipient of the materials was a distributive education teacher; the sole exception was a teacher at a vocational school with a Diversified Occupations Program. All of the teachers supervised and/or were responsible for placement of students in jobs in the community.

A primary difference in the settings was the amount of time devoted to class instruction. The typical vocational school class had three, sixty-minute periods in the afternoon or morning for instruction, for a total of 180 minutes per day available for using the product. The comprehensive high school had one fifty-

minute period per day for product use time. The effect of these differences was to give the vocational school student more opportunity to study entrepreneurship in greater depth. This added time was especially helpful in the completion of individual plans for starting small businesses.

Use of the PACE units varied greatly from site to site. At one of the county vocational schools, Level 3 materials were used informally with adults. The local chamber of commerce referred adults interested in starting a business to the local teacher. An important consideration in this referral was the urgency of the need for advice. Sometimes the prospective business person did not want to wait until a representative of the U.S. Small Business Administration could conduct a short course on the topic. Also, the reputation of the teacher was a factor. Local people seemed to have confidence in his advice. Some of the students he supervised were placed in businesses where the prospective entrepreneurs worked. The following outcomes were identified at the site:

- Four small businesses were started in the community: a lawn and tree service, a home answering service, a gourmet shop in the downtown business district, and a confectionery business.
- Advice on starting a small business was more accessible.

The other county vocational school used the Level 2 PACE units with a class of twelve seniors in the spring of 1983. The materials were also being used this fall with fifteen seniors. About half of the seniors this fall were working in jobs where they could see entrepreneurship from the employer's point of

view. The teacher credits PACE with the following student outcomes:

- The acquisition of more information about entrepreneurship in less time
- A better understanding of how to operate a business
- An increased appreciation by most students of the need to go on in school

At the teacher level, the effects were:

- A satisfaction with the two-day training program
- Ease of integration of material with other references
- An Increased awareness of the need for a unit on bookkeeping (not previously taught); this unit will be taught via an accounting program recently available on a microcomputer
- Plans to offer an adult class during the spring of 1984 on "Beginning a Small Business"

Some school districts are presently experiencing a loss in enrollment. The possibility of attracting students to marketing by offering a course in entrepreneurship was mentioned by more than one teacher. Offering an elective course on entrepreneurship could make better use of a teacher's expertise rather than assigning him/her to an alternative class in an area unfamiliar to the teacher. The PACE units could help facilitate the offering.

Among the five comprehensive high school programs studied, one was offering a brand new course on entrepreneurship as an elective; three were using the units with second-year classes in distributive education; and one had used the PACE units with

adults. Most of the twenty-one enrollees in the adult class were paid to be there with Comprehensive Education and Training Act (CETA) funds. The class met for seventeen weeks in the spring of 1983 for six hours, five days a week during regular school hours.

The coordinator of the class was highly positive about the PACE units, but the instructor and students were not available for comment. Five people in the class reportedly were interested in opening a business; but for many, the class appeared to be part of an requirement for staying in an income maintenance program. A factory had closed in the area, and students were paid to attend class. There were no other effects at that site; the entrepreneurship materials were not being used with secondary school students.

The entrepreneurship materials appeared to be meeting a need in the remaining high school distributive education programs. Teachers started using the modules for the senior year curriculum beginning in the fall of 1983. This was facilitated by a decision at the county level to duplicate sufficient copies of the units for each student to have a personal study copy. These teachers had Units 6-18; for some reason unknown to the teachers, Units 1-5 had not been duplicated.

One teacher had initiated a new course in entrepreneurship. It took a year for her to complete the certification process. She had to meet the state office of education code classification, develop a course description, and obtain her principal's endorsement before submitting the proposed description to the county school board for approval. Twenty-two students had

enrolled in the class; the teacher was highly pleased with the selection of students enrolled. She credits the guidance counselors as the main reason for appropriate student enrollment.

Collectively, a great deal of effort was put forth by educators in implementing and using the program planning guide and the PACE modules. Table 7 shows the amount of time invested in preparing for and instructing these classes in entrepreneurship. Preparation time includes two days of workshop activity (from five to eight hours per week) and in some cases up to fifty hours of preparation time in the summer. The instructional time is based on class schedules. As mentioned previously, the vocational schools had 180 minutes of time available per day, while comprehensive high schools had fifty minutes. Average enrollments did not differ significantly.

As noted in Table 8, comprehensive high schools enrolled slightly more students per class. The reader should keep in mind that these figures are based on very small "N" values -- only six sites. Nevertheless, the numbers are consistent across schools. The number of students with their own businesses, for example, were two in each instance. These student businesses tended to be businesses operated by the student as part of their parent's companies. Rarely would a teacher expect to find high school students owning and operating businesses independent of their parents.

The effects of entrepreneurship module use in six secondary high schools are as follows:

- Initiation of a new course entitled "Entrepreneurship" in one comprehensive high school

TABLE 7

AVERAGE NUMBER OF HOURS SPENT BY INSTRUCTORS
PREPARING AND TEACHING ENTREPRENEURSHIP BY YEAR

Type of School	Preparation Time	Instructional Time
Vocational School	252	540
Comprehensive High School	262	360

TABLE 8

AVERAGE NUMBER OF STUDENTS
SERVED BY ENTREPRENEURSHIP

Type of School	Class Enrollment	Students with Their own Business
Vocational School	14	2
Comprehensive High School	21	2

- Investment of over 1,300 hours of nonreimbursed teacher preparation time, among five sites
- Duplication of over 6,200 pages of instructional material at local expense
- A total of apporoximagely 20,160 annual student contact hours in the six sites visited
- Approximately $200 in start-up costs per site were saved by using the entrepreneurship materials rather than purchasing new textbooks
- Creation of a library of papers on "Great Entrepreneurs"
- Students tended to empathize with problems of business managers
- Student vocabulary changed; a "paper" became an "invoice"
- Countywide informal voluntary get-togethers among teachers and entrepreneurship students to share ideas and experience
- Parents were supportive of classes on entrepreneuship
- Course descriptions were changed to accomodate entrepreneurship themes

No negative effects were noted. Undoubtedly, other material was supplanted by the entrepreneurship instruction; but the teachers uniformly saw this as an improvement. Many factors existed to facilitate and/or inhibit the impact of entrepreneurship materials. Among them were the following:

Facilitating Factors

- School-state Infrastructure. A variety of conditions came together to support the introduction of entrepreneurship materials in West Virginia. Authors of the program planning guide were employed at the state level; they had been local teachers of Distributive Education. Local teachers knew and respected them as leaders. Cooperation between the local and county levels was documented in this case study by the

duplication of the PACE materials. Within the schools, relationships were important; principals had to endorse changes in course content.

- o Background of Participants. Enthusiastic study of entrepreneurship could be linked to personal experiences of both teachers and students. Often teachers had engaged in business themselves either as entrepreneurs or as employees. Students interested in starting their own businesses tended to be sons and daughters of proprietors.

- o Linkages to the Community. In the broadest sense, the entrepreneurship units provided an opportunity for community leaders in business and industry to share their expertise with students. All of the field sites had speakers, and other kinds of involvement from the community. Of particular importance were the ties to the local chambers of commerce and the U.S. Small Business Administration. An opportunity also existed for secondary school teachers to work together with other governmental agencies to serve the needs of adults in the community.

- o Teacher Competence. Two aspects of entrepreneurship relate to competence of the teachers. First, all were distributive education teachers or former distributive education teachers. They knew business people in the community; in some cases they had operated businesses of their own. Teaching entrepreneurship was an extension of what they had been doing. Secondly, the two-day workshop served to review the essential information. They felt "comfortable" with the materials despite the lack of experience actually using them.

Inhibiting Factors

- o Strict Certification Process. The strict process for certifying new courses tended to slow down the implementation of a new course. It took nearly a year from the time the materials were distributed until the course could be offered. While this is not excessive, it is a time delay that must be considered when planning innovations in a curriculum.

- o Teacher inexperience. All but one of the teachers in one of the counties were first- or second-year teachers. The burden of trying something new was added to the task of preparing instruction for the first time. New teacher use of the modules was not as effective as use by experienced teachers.

- Qualifications of the Students. If one accepts the strict definition of an entrepreneur as one who "starts a business," then most of the students in the classes studied could not be considered qualified as potential entrepreneurs. They would not be good risks for venture capital. Secondary school students lack business experience, and most of the CETA-sponsored adults lack the funds to start their own business. Selection of students appears to be a key factor in the potential success of a program.

- Limited Parent Involvement. With the notable exception of a few parents who owned their own business, most parents were only mildly interested in the content of school instruction. Few parents visited classrooms during orientation programs; and teachers received few questions from parents.

Some circumstantial factors seemed to exert conflicting influences on the success of the entrepreneurship program. For example, the economic recession both stimulated interest in enrollment among adults as a means of making money and decreased the availability of capital to start a business.

The effect of the PACE modules and the program planning guide on entrepreneurship instruction seemed to be positive. The teachers were excited and pleased with their accomplishments. The students were interested and also a bit intrigued by the possibility of starting their own business.

SUMMARY

Having examined the records of product distribution, "followed-up" recipients of D&U selected products, and interviewed users of R&D products in six sites, what can be said of R&D product effectiveness? Can it be documented? And furthermore, what is likely to be the substantive outcomes from disseminating R&D products?

Clearly, the answer to the question of documentation is a resounding "yes." Evaluative information can be gathered on any or all R&D products if money and time is available to pay for this activity. The problem is that the benefits from collecting this information may not outweigh the cost. Relatively low-cost information on product distribution can be collected from producers and distributors of these products. In this study distribution data were collected on 248 products for a 68.8 percent return of useable record sheets. This return of state-administered products has been consistently near this percentage for three years. The quality of information has also been consistent over a three-year period. At the minimum, governmental agencies should know how many products have been produced from an expenditure of taxpayers' dollars and where copies of products have been sent.

Knowing what recipients do with the products presents a different type of problem. While questionnaires can delineate categories of product use, readers of reports may not gain the flavor of adaptations in the product, circumstances surrounding its use, and implications from that use. Initial responses to

telephone inquiries about product use had to be probed with other questions. The product recipient often did not recognize all of the dimensions of use at first glance. It should be possible to obtain relatively superficial information about use from a written survey document; but deeper understandings will have to come through personal interviews -- either by telephone or face-to-face. This "personal touch", however, pushes the cost up; thus governmental agencies may have to consider seriously the value of the information prior to launching an investigation into product use. In this study product use data was obtained from users of eleven of twelve products being reviewed. A feasibility study of costs and possible benefits of product use and impact data is always in order.

The substantive results from this study of D&U product use painted a rather positive picture. Very few people reported "no use" of the product they had requested. Those reporting no use had a reason, such as a limited amount of elapsed time since receiving the product, lack of resources, and so forth. The importance of elapsed time was reinforced by the impact assessment. It took a full year for a new course to be constructed and approved following the introduction of instructional units in the fall. Results from the introduction of R&D products into classrooms come slowly -- particularly in areas such as entrepreneurship where a student's ability to borrow money may determine his or her chances of going into business.

Documenting the results of product use in detail or in assessing impact is expensive. For example, two interviewers spent four days interviewing participants at the six sites. It would have been better to have taken baseline measures in advance of introducing the R&D product. Decision options dependent on evaluative information about product use and/or impact need to be tightly structured to facilitate efficient and effective data collection. This should be done on a product-by-product, decision-by-decision basis.

The twin forces of accountability and innovation management should drive investment of money in product use and/or impact studies. Assessment of entrepreneurship programs in West Virginia yielded a snapshot picture of activities in six school districts. If the districts are representative of others, then the information on numbers of students being served, teacher satisfaction with the materials, and so on could be used to (1) justify current expenditures of time and money for product development and distribution, or (2) establish baseline measurements for goals and priorities. Data-based management decisions are being used more and more by state departments of education. Product impact studies can determine changes that have occurred in vocational education programs as a result of R&D product use. This information can help establish a baseline of current practice in the field, thus influencing the need for new initiatives.

The primary implication from these studies is that impact data can be collected from field sites using R&D products. The data becomes easier to collect the nearer it is to the source of product implementation. However, clues to resolution of the problem are more likely to come from studies of product use and impact; but these are the more expensive investigations to conduct.

A second implication from these studies is the need to plan ahead. This is imperative for impact studies because baseline data should be collected. However, planning is essential for all studies: questions must be relevant to the purposes of the evaluation, and respondents should be key audiences who are in a position to resolve the problem(s) under investigation.

APPENDIX A

CONCEPTUAL FRAMEWORK FOR ASSESSING IMPACT

CONCEPTUAL FRAMEWORK FOR ASSESSING IMPACT

Introduction

The conceptual framework for assessing the impact of R&D products may be found on the following page. It contains five stages related to product development and use.

Criteria for assessing the impact of R&D products are arrayed within these five stages in figure A-1. Two different types of impact criteria are presented: formative and summative. Criteria inherent in the first four stages of the framework (development, dissemination, implementation, and utilization) are considered to be formative impact criteria. The primary purpose of evaluations conducted during these stages is to enhance the impact potential of the innovation. Criteria related to the last stage, effects, are considered summative impact criteria. Changes in people, organizations, or society are primary indicators of summative impact. Evidence of the permanence of the changes and unanticipated consequences of the innovation sometimes comes to light months or even years after the innovation has been introduced.

Securing the funds, time, and interest needed to conduct impact assessments is difficult. Consequently, the authors advocate formative impact assessments as well as summative impact assessments. Formative impact assessments would examine the extent to which important criteria have been met at each stage of the R&D process. The effect of an R&D product in meeting these criteria is cumulative. For example, a product that is systematically developed, strategically disseminated, successfully

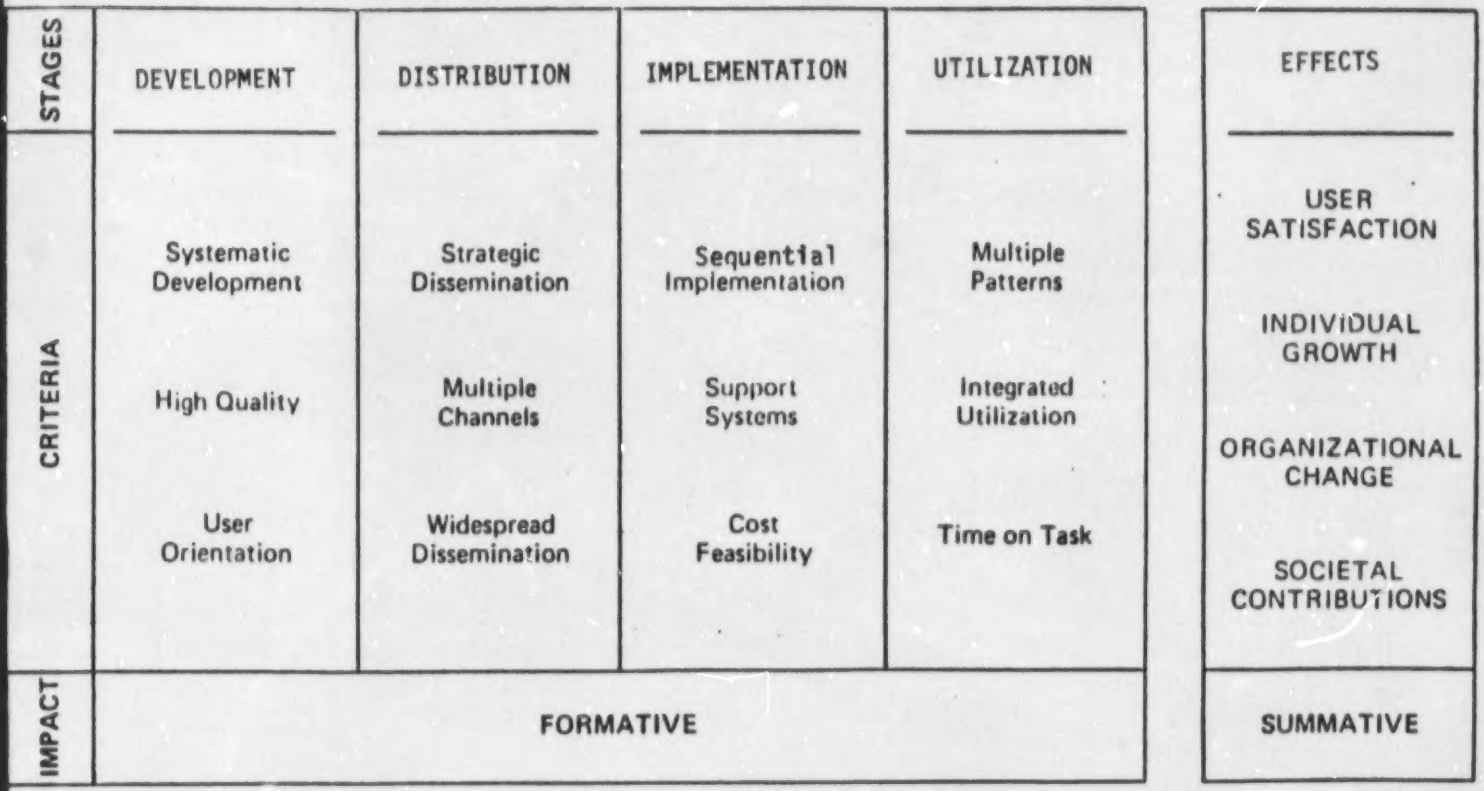

Figure A-1. R&D Impact Criteria

implemented, and used in an integrated manner is more likely to result in greater change than is a product not meeting these criteria. Of course, the impact of an R&D product also reflects the constraints and opportunities present in the adopting unit's environment. Therefore, a product developer or disseminator does not have total control over the changes that may or may not take place as a result of his or her product.

Definitions of sixteen R&D impact criteria organized by the five program improvement stages follow.

Development

Impact begins with development of the product. Thus criteria used in the development process subsequently can be used to select relevant research for developing other products, to encourage systematic testing and revision, and to upgrade product quality.

Systematic development. A systematic process should be followed in developing innovations. An ideal process would include conducting research and needs assessment/task analysis; reviewing relevant knowledge and practice; building a conceptual framework; sequencing development; conducting testing and revision cycles; disseminating the product; implementing the product; and evaluating the results.

High quality. Innovations should reflect scholarship, be useful, communicate clearly, be marketable, and be free of biases. Content should be accurate, up-to-date, focused on essentials, and complete.

User orientation. Representatives of relevant audiences should be identified and involved in designing, testing, and using innovations. Primary audiences should receive priority in dissemination efforts. The resulting product should contain practical information organized in an easy-to-use format.

Distribution

The distribution criteria should encourage the spread of the R&D product to primary audiences, increase the likelihood of the product's acceptance, and generate support for its use.

Strategic distribution. Cost-effective strategies for distributing an R&D product should be devised on the basis of the characteristics of potential users, site-specific factors, and features of the product itself. Distribution should reach opinion leaders and influential organizations in the external environment.

Multiple channels. More than one channel for conveying information about innovations should be used. Communication should include mass media (e.g., brochures sent out by mail) and interpersonal channels (e.g., technical assistance). Normally, information duplication and overlap are assets rather than liabilities during the distribution stage.

Widespread distribution. Innovations should reach appropriate users. Thus, distribution to individuals in different roles, in diverse settings, and in many geographic areas may be necessary. Secondary distribution through workshops, reprints, libraries, the ERIC system, and so on should be encouraged.

Implementation

Implementation strategies determine the product's point of entry into an organization (e.g., at the classroom level). Cost feasibility studies and the need among practitioners for support systems aid the timely implementation of R&D.

Sequential implementation. The introduction of innovations should be sequenced to meet the needs and unique characteristics of an adopting site. Often potential users need to be introduced to segments of the innovation to avoid total rejection of the intervention.

Support systems. Support systems necessary for encouraging the full use of an innovation should be operational at the time of implementation. These systems are of three types: personal resources (e.g., administrative endorsement or site personnel endorsement), information resources (e.g., training in the use of support materials and procedures), and physical resources (e.g., dollars, supplies, and equipment).

Cost feasibility. Information describing the innovation's resource requirements should allow quick and easy estimates of the costs likely to be incurred by an adopting unit.

Use

Various product use criteria can encourage the appropriate trial use of products, stimulate the integration of products into existing operations, and increase the chances of the continued use of products.

Multiple patterns of use. An innovation's use patterns will vary according to the conditions, intensity, level, frequency,

and extent of use. The users' setting, role, and demographic characteristics create the conditions for different types of use. Multiple patterns of use and secondary use of R&D by other than the primary user audience should be encouraged.

Time on task. An R&D product should be used frequently enough and long enough for its use to become an integral part of current practice. The audience's time in actually using the product should be maximized.

Integrated use. The use of an innovative product should be intensive and pervasive throughout the organization. To accomplish this goal, personal commitment is required within the organization at all levels to institutionalize the product into organizational routines.

Effects

Product effects criteria should accurately describe changes in individuals, organizations, or society attributed to use of R&D innovations.

User satisfaction. The R&D product and its implementation should meet users' expectations and result in a positive user attitude toward the product. User satisfaction may be indicated by product advocacy or by creative adaptations.

Individual growth. Innovations should contribute to changes in an individual's attitude, knowledge, or performance.

Organizational change. R&D products should contribute to beneficial changes in the user's organizational policy, programs, practices, or structure. Beneficial changes may also include cost and time savings over current practice.

Societal contributions. R&D products should contribute new and significant information with the potential to advance knowledge, improve current practice, or influence social systems.

APPENDIX B

COMMUNICATIONS

OSU The Ohio State University

THE NATIONAL CENTER FOR RESEARCH IN VOCATIONAL EDUCATION

1960 Kenny Road
Columbus, Ohio 43210

Phone: 614-486-3655
Cable: CTVOCEDOSU/Columbus, Ohio

March 14, 1983

Address of
State Director

Dear:

The National Center is designing an impact evaluation system of vocational education research and development. Such a system could strengthen coordination of program improvement activities as called for by Larry Selland at the 1982 Dissemination and Utilization Conference. This work is supported by the U.S. Office of Vocational and Adult Education.

We need support from your staff to build an effective system. This year, we plar to look primarily at the distribution of R&D products. Specifically, we need any available information on the number of R&D products distributed from program improvement projects completed in Fiscals Years 1981 and 1982. A member of my staff, William Hull, will be contacting a person in your state, , to obtain this information. Your state's participation is, of course, voluntary. A letter to the aforementioned person from Dr. Hull listing the specific R&D products will precede the telephone request. Please call him if you have questions about this activity.

We appreciate your assistance and look forward to helpful information from your office.

Sincerely,

Robert E. Taylor
Executive Director

RET:jg

OSU

The Ohio State University

THE NATIONAL CENTER
FOR RESEARCH IN VOCATIONAL EDUCATION

1960 Kenny Road
Columbus, Ohio 43210

Phone: 614-486-3655
Cable: CTVOCEDOSU/Columbus, Ohio

April 18, 1983

Dear Sirs:

We are compiling information on the distribution of research and development products from program improvement projects completed in Fiscal Years 1981 and 1982. This work is supported by the U.S. Office of Vocational and Adult Education. Your help is needed to construct an evaluation system of vocational education research and development. The information requested should come from available records. Sending the information is completely voluntary.

Please send the information on the attached sheet to me at the above address by May 10, 1983. You can reach me at (800) 848-4815, ext. 517 if you have questions. You may wish to use the Computer-Based Message Switching System to send the information if you have a membership with Bibliographic Retrieval Services.

Enclosed is a draft taxonomy of R&D product codes provided for your information. It was developed by Kay Adams and Debbie Bragg at the National Center. Please feel free to use this information in any way that benefits your organization.

We appreciate your assistance and look forward to communication from you.

Sincerely,

William L. Hull
Research Specialist

WLH:jg

Enclosures

Note: Please identify any products you have produced with federal funds (authorized by P.L. 94-482, sections 131, 132, 133) by title and publishing company that have been disseminated commercially during fiscal years 1981 or 1982.

PRODUCT DISTRIBUTION RECORD: 1981

Id. _____

Sequence _____

Prod. type _____

Sub. Focus _____

Mos. after release _____

Type of Product:

Substantive Focus:

1. When was the product released? _____ month _____ year.

2. How many copies of this product were distributed during the calendar year FY 1981 to the following audiences _____?

Role / Organization	Total	Number of Copies		
		Administrative, Professional, and Support Personnel	Teachers/ Trainers	Students/ Trainees
Education Organizations				
State education agencies				
Secondary schools, including district-wide audiences				
Two-year community/technical institutes, proprietory schools, and programs for adults				
Universities and other four-year institutions				
Other Public Organizations				
Military, correctional institutions, rehabilitation services, CETA/JPTA programs, and community-based organizations such as industry opportunity centers				
Other Private Sector Organizations				
Business, industry, and labor councils				
Total				

3. In addition to the copies indicated above, how many copies were sent to the following:

_____ Persons at the national or regional level

_____ Persons in other countries

THANK YOU FOR VOLUNTARILY SHARING THIS INFORMATION

REFERENCES

Budke, Wesley E. Vocational Education Program Improvement: An Analysis of State-administered Projects in FY 1978 - FY 1982. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

Hull, William L. The Distribution of ERIC-accepted Vocational Education R and D Products. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1982.

Hull, William L. and Adams, Kay A. System Design for Evaluating Vocational Education Research and Development. Columbus: The National Center for Research in Vocational Education, The Ohio State University, forthcoming.

Hull, William L.; Adams, A.; and Bragg, Debra D. R and D Impact Criteria for Improving Vocational Education Programs. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1983.

National Advisory Council on Vocational Education. Policy Statement on Reauthorization of the Vocational Education Act. Washington, DC: The National Advisory Council on Vocational Education, October 1981.

National Center for Research in Vocational Education. The Distribution of Vocational Education R and D Products. Columbus: The National Center for Research in Vocational Education, The Ohio State University, 1980.